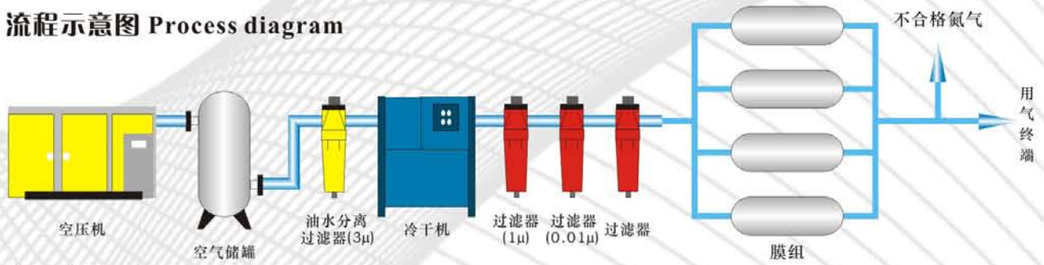
膜制氮设备Membrane Nitrogen Generator

工艺原理 Technical principle

膜分离技术依靠不同气体在膜中溶解和扩散系数的差异而具有不同的渗透速度来实现气体的分离。当混合气体在驱动力一膜两侧压力差作用下，渗透速率相当快的气体如水汽、氢气、氦气、硫化氢、二氧化碳等透过膜后，在膜的渗透侧被富集，而渗透速率相当慢的气体如氮气、氩气、甲烷和一氧化碳等被滞留在膜的滞留侧被富集从而达到混合气体分离的目的。 膜分离制氮设备即根据以上原理，以压缩空气为原料气来提取较高纯度的氮气。

Each gas has its permeability to membranes. Due to permeability differences, when compressed air goes through the membrane units, oxygen a a permeable gas("fast gas") goes through membrane walls to outside. Nitrogen as a product gas ("slow gas") is collected at outlet. Higher pressure leads to higher permeability of each gas. At the mean time, the efficiency drops.

流程示意图 Process diagram



技术特点 Features

- 流程简单，结构紧凑，节省空间。
- 可通过增加膜组件容易地扩大系统的产氮量。
- 开车、停车简便迅速，随开随用。
- 系统全自动化，触摸屏人机对话，并留有接口可实现远程控制。
- 氮气纯度调节方便,可根据用户的需求在95%-99.5%之间任意调节，膜分离制氮机与氮气提纯装置配套，可获得99.9995%的高纯氮气。
- 膜制氮运动部件少，噪声低，维护成本低。

Sample process, save space

No moving part, low sound level and lowest maintenance

Membrane modules compact design engineered for fast installation and simple operation

Consistent product quality

Capacity augment is available

Nitrogen purity is adjustable and customizable from 95%-99.5%,Capacity

技术指标 Main parameter

- 操作压力: 1～1.3MPa（G）
  Operating Pressure: 1~1.3Mpa (G)
- 操作温度:50℃
  Operating Temperature:50℃
- 氮气压力:≤1.2Mpa（G）
  Nitrogen pressure:≤1.2Mpa (G)
- 氮气流量:15NM^3/h~1500Nm^3/h
  Nitrogen flowrate:15Nm^3/h~1500Nm^3/h
- 氮气纯度:95-99.9%
  Nitrogen Purity: 950%~99.9% (V/V)
- 常压露点： -40℃
  Dew point:≤ -40℃

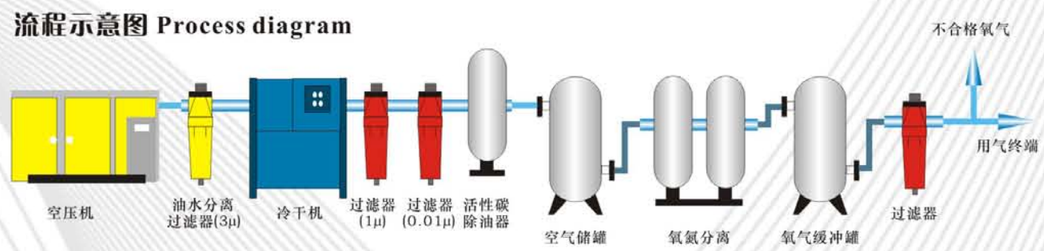
变压吸附（PSA）制氧设备Oxygen Generator

工艺原理 Technical principle

在常温条件下，利用沸石分子筛对氧气和氮气的吸附容量不同，提高吸附压力，分子筛选择吸附空气中的氮气；降低吸附压力，分子筛脱附吸附的氮气，实现吸附--脱附循环操作，从而实现分子筛再生，并在吸附器的一端富集到氧气。利用两个或多个吸附器交替工作即可连续制取高纯度的氧气。

Pressure Swing Adsorption (PSA) is a popular technology which is used to separate some gas species from a mixture of gases under pressure. This is achieved as per the species' molecular characteristics and affinity for an adsorbent material. PSA operates at near-ambient temperatures. It differs from cryogenic distillation techniques of gas separation. Special adsorptive materials (for example: zeolites) are used as a molecular sieve, preferentially adsorbing the target gas species at high pressure. The process then swings to low pressure to desorb the adsorbent material.

流程示意图 Process diagram



技术特点 Features

- 先进的工艺流程设计，提高氧气回收率和分子筛的利用率，降低用气成本。
- 进口程控阀门，使用寿命达到200万次以上。
- PLC智能程序控制系统，操作简单，确保设备安全稳定运行。
- 专有自动压紧技术，避免分子筛由于气流冲击产生窜动的摩擦粉化。

Low investment, small workload of construction

Low energy consumption, advanced process system

High automation, less operators

Quickly start, and conveniencely open and shut down

Low costs of maintenance

Stable operation and highly reliable

High quality pneumatic control valves, safe, reliable and durable

High quality special oxygen molecular sieve adsorbent, good adsorption properties

技术指标 Main parameter

- 氧气流量：1~800Nm^3/h　　Capacity:1~800 Nm^3/h
- 氧气纯度：50%~95% (v/v)　　Purity:50%~95% (V/V)
- 氧气压力：0.05~0.8MPa（G）　　Pressure:0.05~0.8MPA
- 常压露点：-45℃：　　Dew point: -45℃

应用领域

应用领域：氧气被广泛用于冶金、玻璃、造纸、医疗、切割、热电、水处理、环保等行业